

Claims

What is claimed is:

1 1. A method for testing circuit components comprising:

2 moving a test stage under a first camera, wherein said test stage contains
3 a test pedestal adapted to hold at least one test bar and at least one tray
4 containing at least one test bar, each test bar containing at least one circuit
5 component;

6 visually aligning, with said first camera, a pickup collet with a selected
7 one of said at least one test bar;

8 picking up said selected test bar with said pickup collet;

9 visually aligning, with said first camera, said test pedestal; and

10 positioning said selected test bar on said test pedestal;

11 moving said test stage under a second camera; and

12 visually aligning, with said second camera, said selected test bar with a
13 test site.

1 2. A method in accordance with claim 1, further comprising:

2 visually aligning, with said second camera, a selected circuit component
3 contained in said selected test bar with said test site; and

4 testing said selected circuit component.

1 3. A method in accordance with claim 2 further comprising:

2 subsequent to testing said selected circuit component, moving said test
3 stage under said first camera;

4 visually aligning, with said first camera, said test pedestal;

5 picking up the selected test bar with said pickup collet;

6 visually aligning, with said first camera, another one of said at least one
7 tray with said pickup collet, said another one of the at least one tray being an
8 output tray; and

9 positioning said selected test bar on said output tray.

1 4. A method in accordance with claim 1 further comprising:

2 positioning said pickup collet at a first collet position prior to moving
3 said test stage under said first camera; and

4 positioning said pickup collet at a second collet position prior to picking
5 up said selected test bar with said pickup collet and positioning said selected
6 test bar on said test pedestal.

1 5. A method in accordance with claim 1, wherein the steps of moving the
2 test stage comprise moving the test stage to predetermined coordinates, and the
3 steps of visually aligning comprise processing a camera image.

1 6. A method in accordance with claim 1, wherein said circuit components
2 comprise optical devices.

1 7. A method in accordance with claim 1, wherein said at least one test bar
2 further comprises an identification code.

1 8. A method in accordance with claim 7 further comprising acquiring an
2 image, with said first camera, of said identification code.

1 9. A test fixture for testing circuit components, said fixture comprising:

2 at least one test bar, each test bar containing a plurality of circuit
3 components;

4 at least one tray, each tray containing a plurality of test bars;

5 a test pedestal adapted to hold at least one test bar;

6 a transportable test stage comprising said at least one tray and said test
7 pedestal, wherein said at least one tray and said test pedestal are in a fixed
8 position with respect to said test stage;

9 a pickup collet for picking up and placing said at least one test bar;

10 a first camera for performing visual alignment with said pickup collet;

11 and

12 a second camera for visually aligning said circuit component with a test
13 site.

1 10. A test fixture in accordance with claim 9, wherein said circuit
2 components comprise optical devices.

1 11. A test fixture in accordance with claim 10, wherein said optical devices
2 comprise at least one of a laser diode and a wavelength division multiplexer.

1 12. A test fixture in accordance with claim 9, wherein each circuit
2 component comprises at least one test pad for making contact with test probes
3 at said test site, the surface area of each test pad being approximately 2.5×10^{-3}
4 square inches.

1 13. A test fixture in accordance with claim 9, wherein said plurality of test
2 bars contained by each tray is held in place by a vacuum.

1 14. A test fixture in accordance with claim 9, wherein said at least one test
2 bar contained by said test pedestal is held in place by a vacuum.

1 15. A test fixture in accordance with claim 9, wherein said plurality of
2 circuit components contained by each test bar is held in place by a vacuum.

1 16. A test fixture in accordance with claim 9, wherein said test bar is held in
2 contact with said pickup collet by a vacuum.

1 17. A test fixture in accordance with claim 9, wherein said at least one test
2 bar comprises an identification code.

1 18. A test fixture in accordance with claim 9, wherein said at least one tray
2 is held in contact with said test stage by a vacuum.

1 19. A test fixture in accordance with claim 9, wherein the test stage is
2 moved to predetermined coordinates, the pickup collet is aligned with the test
3 pedestal and each tray by processing a camera image, and said test pedestal is
4 aligned with said test site by processing a camera image.

1 20. A test fixture in accordance with claim 9, wherein said test site
2 comprises at least one of a front light detector, a rear light detector, and a
3 spectroscopic lens.

1 21. A test fixture in accordance with claim 9, wherein said test pedestal
2 comprises a cooling device for maintaining a test bar placed on said test
3 pedestal at an approximately constant temperature.

1 22. A test fixture in accordance with claim 21, wherein said temperature is
2 25° Centigrade.